FINAL REPORT
FROM
SPACE TELESCOPE SCIENCE INSTITUTE
NASA HQ grant NAGW-2988
PRINCIPAL INVESTIGATOR: William R. Oegerle
Date: January 31, 1995

Background

Clusters of galaxies are the largest gravitationally bound entities in the universe. Although a large body of literature has been devoted to their study, many of the basic properties of clusters are still unknown. What is the distribution of galaxy orbits in clusters? How important is dynamical evolution in clusters (ie. merging, tidal stripping)? How are cD galaxies formed? What is the distribution of mass in clusters? The purpose of my NASA HQ grant is to address these questions.

Progress

Progress in the area of understanding the dynamics of galaxy clusters has been impeded by the difficulty of obtaining large numbers of galaxy velocities. Using multi-fiber spectrographs at Steward Observatory and NOAO, I and my collaborators (John Hill, University of Arizona; and John Hoessel, University of Wisconsin) have obtained a large dataset of galaxy velocities on a number of clusters. The main goal of this NASA HQ grant was to analyze and publish this data (which had already been obtained at no expense to the NASA grant).

As of January 1995, we have published results of our work on 9 clusters of galaxies. Another paper including an additional 4 clusters is currently in press. The following papers have resulted from this HQ grant:

Oegerle, W. and Hill, J. "Structure, Rotation and the Peculiar Velocity cD Galaxy in Abell 2107", 1992, Astronomical Journal 104, 2078.

Pinkney, J., Rhee, G., Burns, J., Hill, J., Oegerle, W., Batuski, D., and Hintzen, P., "Dynamics of the Galaxy Cluster Abell 2634", 1993, Astrophysical Journal 416, 36.

Hill, J. and Oegerle, W. "Dynamics of cD Clusters of Galaxies I. Redshift Data for 7 Clusters", 1993, Astronomical Journal 106, 831.

Oegerle, W. and Hill, J., "Dynamics of cD Clusters of Galaxies II. Analysis of 7 Clusters", 1994, Astronomical Journal 107, 857.

Oegerle, W., Hill, J. & Fitchett, M. "Observations of High Dispersion Clusters of Galaxies: Constraints on Cold Dark Matter", 1994, Astronomical Journal, in press.

In addition, this work has been presented at the international conference on Observational Cosmology held in Milan in 1992, and at the 1994 Aspen Center for Physics Workshop on Clusters of Galaxies.

TRANSFER TO THE JOHNS HOPKINS UNIVERSITY AS OF 2/1/95

Why a No-Cost Extension is Requested

John Hill (my principal collaborator) and I are about half way through the reduction of the remaining dataset of galaxy redshifts on a dozen clusters. We expect that the remaining work will take us about one year, and therefore I request a no-cost extension of this grant to allow us to finish this work.

PATENT/INVENTION REPORT

Principal Investigator: Dr. William R. Oegerle

Grant : NAW-2988

Patents/Inventions Developed: NONE

Final Property/Inventory Report

Space Telescope Science Institute
Property 1018 Receive Report by Contract-Grant number
as of 12.05.94
for dollar values greater than 0.00

Contract/Grant	Tag No.	Description	Model Number	Location	Date	Comments	Unit Cost	Trans Code	Current Custodian
NAGW-2988	GR000232	DUAL SYST, DRIVES(GV1776 CONCEALED INSIDE)	CD4-17-CS-TC	346	06/17/92	Original Acquisition	3,260.00	R	BRESNAHAN, PAM
NAGW-2988	GR000233	SPARCSTATION, SUN	475	346	06/07/92	Original Acquisition	5,455.00	R	BRESNAHAN, PAM
NAGW-2988	GR000600	KEYBORAD	TYPE 5	327	10/06/94		150.00	R	BRESNAHAN, PAM
NAGW-2988	GR000601	MONITOR, 17" COLOR	GDM-17E10	327	10/06/94		1,000.00	R	BRESNAHAN, PAM
NAGW-2988	GR000602	SPARCSTATION 5	600-3107-03	327	10/06/94		4,637.00	R	BRESNAHAN, PAM
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5 records listed. 5 values listed.

Condition code - A5.